



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
EMERGENCY RESPONSE BRANCH
9311 GROH ROAD, ROOM 216
GROSSE ILE, MI 48138-1697

EPA Region 5 Records Ctr.



207914

NOV 21 2002

MEMORANDUM

REPLY TO ATTENTION OF:

SUBJECT: ACTION MEMORANDUM - Request for an Emergency Removal Action at the Commerce Road Mercury Spill Site, Milford, Oakland County, Michigan (Site ID # B54R)

FROM: Jon Gulch, On-Scene Coordinator *J-G for JG 10-30-02*
Mark Durno, On-Scene Coordinator
Emergency Response Branch - Section 1

THRU: Jason H. El-Zein, Chief *J-GE 10-30-02*
Emergency Response Branch - Section 1

TO: Richard C. Karl, Chief
Emergency Response Branch

I. PURPOSE

The purpose of this memorandum is to request and document your approval to expend up to \$42,152 to mitigate immediate threats to public health, welfare, and the environment at the Commerce Road Mercury Spill Site (Site), located at 404 East Commerce Road, Milford, Oakland County, Michigan, and to document verbal approval of a \$25,000 response cost ceiling initiated by Mark Durno, On-Scene Coordinator (OSC), Emergency Response Branch, on September 11, 2002. This response action was necessary to mitigate the immediate threat to public health, welfare, and the environment posed by a release of elemental mercury at a residence.

This emergency response action was conducted pursuant to Section 104(a)(1) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. Section 9604(a)(1), as amended, by locating, recovering, and cleaning up mercury spilled in the residential home. Off-site disposal of the mercury and mercury-contaminated media (carpet, clothing, furniture, etc.) has also been completed.

The removal action was considered an emergency response due to the presence of elemental mercury and elevated mercury vapor levels throughout the house. This spill threatened the health and welfare of the occupants of the residence and local neighbors due to the potential for the mercury to be tracked away from the house. This project required 7 on-site working days to complete.

The Commerce Road Mercury Spill Site is not on the National Priorities List (NPL).

II. SITE CONDITIONS AND BACKGROUND

CERCLIS ID #MIN 000 508 604

A. Physical Location and Description

The Commerce Road Mercury Spill Site consists of one residential property located within the City of Milford, Oakland County, Michigan, 48381. The geographical coordinates for the Site are Latitude: North 42°35'30.30" North, Longitude 83° 35'47.87" West. In Michigan, the low-income percentage is 29% and the minority percentage is 18%. To meet the Environmental Justice (EJ) concern criteria, the area within 1 mile of the Site must have a population that is twice the State low-income percentage and/or twice the State minority percentage. That is, the area must be at least 58% low-income and/or 36% minority. The low-income percentage within one mile of the spill is as high as 36% and the minority percentage is 11%, as determined by LandView IV EJ analysis. Therefore, this Site does not meet the Region's EJ case criteria based on demographics as identified in "Region 5 Interim Guidelines for Identifying and Addressing a Potential EJ Case, June 1998."

B. Site Background

The mercury spill occurred at a private residence located at 404 East Commerce Road, Milford, Oakland County, Michigan. The homeowners owned an antique grandfather clock that contained two 10-pound weights. The weights were glass containers full of elemental mercury. The homeowners informed U.S. EPA that, during home renovation, they had removed the mercury weights and set them upright in the bottom of the clock base. Some time later, they observed that one of the weights had fallen over and released all of its contents, approximately 10 pounds of mercury. Most of the substance was cleaned up by hand, double bagged, and placed in their garage. The homeowners observed that some of the mercury had spilled along the wall and flowed between the floor and wall interface into the laundry room, which was located in the basement. Again, the homeowners cleaned up as much of the mercury as they could by hand and contained the substance.

The homeowners then placed a telephone call to their insurance company (AAA) who stated that they should contact the State of Michigan Department of Community Health (MDCH). Brandon Boyle responded and clean-up options were discussed between the homeowners, MDCH, and AAA. After several weeks and no resolution for the clean-up of the spilled mercury, MDCH placed a phone call to the U.S. EPA for assistance in remedying the situation.

On September 11, 2002, U.S. EPA and Tetra Tech EM Inc., a Superfund Technical Assistance and Response Team (START) contractor mobilized to the site to screen the residence for the presence of mercury vapor. START screened the house for the presence of mercury vapor using a Lumex RA 915+ portable mercury vapor analyzer.

Mercury vapor concentrations in the breathing zone throughout the house ranged from 2 to 8 $\mu\text{g}/\text{m}^3$. The highest concentrations were recorded in the area underneath the clock located on the first floor (20 $\mu\text{g}/\text{m}^3$) and in the basement laundry room (>50 $\mu\text{g}/\text{m}^3$). The residents had previously agreed to vacate their house temporarily during cleanup activities.

At approximately 1900, Ferguson Harbor, Inc., an Emergency and Rapid Response Services (ERRS) contractor, mobilized to the site and commenced clean up activities. ERRS vacuumed the visible mercury from the laundry room (using a mercury vacuum) and removed the washer and dryer from the laundry room. All windows were then opened and fans were placed in windows to allow any mercury vapor to be ventilated from the residence. The house was secured and allowed to ventilate overnight.

U.S. EPA, START, and ERRS returned to the residence on September 12, 2002. The house was re-screened using the Lumex. With the exception of the spill room (first floor) and the laundry room, mercury vapor concentrations in the house ranged from 0.8 to 2 $\mu\text{g}/\text{m}^3$. ERRS removed the rugs in the room where the spill occurred on the first floor and the baseboard along the wall where the spill occurred. In addition, the clock, floor and wall were cleaned using a mercury vacuum. The clock and floor were treated with HgX, a mercury binding solution. The room and clock were then ventilated using mechanical fans.

A false wall in the laundry room was removed by ERRS. It was then discovered that mercury had flowed behind and into duct work from the upstairs area where the initial spill had occurred. ERRS collected mercury from the duct work and removed approximately 5 feet of ductwork leading from the vent located in the spill room upstairs. The entire area was then vacuumed and treated with HgX. The house was allowed to ventilate overnight. In addition, the washer, which had been previously removed from the laundry room, was wiped down, vacuumed and treated with HgX.

Cleanup activities continued on September 13, 2002. ERRS placed propane heaters over the spill area in the laundry room and the room was allowed to heat for approximately 4 hours. Following heating, the concrete area below the duct work in the laundry room was then sealed using a concrete sealer.

Following cleanup activities, the house was ventilated using portable mechanical fans over the weekend. On September 16, the house was re-screened by START. Residual mercury vapor concentrations ranged from 1.3 to 1.7 $\mu\text{g}/\text{m}^3$ in the breathing zone, which is slightly above the Agency for Toxic Substances and Disease Registry (ATSDR) residential indoor cleanup goal of 1 $\mu\text{g}/\text{m}^3$. In order to remove the residual mercury vapor, the heat in the house was turned on and the house was allowed to continue to ventilate.

From September 17-27, 2002, START returned to the site for a screening and stabilization to prepare for a final screening and release of the house. Mercury vapor

concentrations in the breathing zone throughout the house ranged from 0.1 to 0.5 $\mu\text{g}/\text{m}^3$.

On October 1, 2002, the house was re-screened and concentrations within the breathing zone of the house ranged from 5 to 12 $\mu\text{g}/\text{m}^3$. Based on these elevated readings, START returned to the house on October 2, 2002, and conducted a thorough screening of each room to identify all possible sources for the mercury vapor. Results of the screening indicated that the carpeting in the upstairs portion of the house and sun-room exhibited concentrations as high as 48 $\mu\text{g}/\text{m}^3$. Readings from the breathing zone in the basement ranged from 2.5 to 49 $\mu\text{g}/\text{m}^3$. Isolated areas in the den (original spill location) exhibited readings as high as 6 $\mu\text{g}/\text{m}^3$.

From October 3-7, 2002, U.S. EPA, START and ERRS mobilized to the site and recommenced clean up activities. Cleanup activities included removal and disposal of the linoleum floor, underlying sub-floor, washer, and false wall from the laundry room. The activities also included the removal of the carpeting from the sun room, carpet padding from the basement stairs, and the clock from the basement. Personal items located in the basement and garage, including boxes and a refrigerator, were screened for the presence of mercury vapor. Items that were not contaminated were placed into a temporary storage unit secured by the homeowner. Once items in the rooms were removed, floors were vacuumed using a mercury vacuum and washed with HgX a mercury binding solution.

On October 8, 2002, START returned to the site to re-screen the house. Mercury vapor concentrations in breathing zones in the house ranged from 0.2 to 0.3 $\mu\text{g}/\text{m}^3$.

On October 9, START returned to the site in the morning and secured the windows in the house and set the temperature at 73°. START returned to the site after allowing the house to stabilize for six hours. Readings in the breathing zone of the house ranged from 0.4 to 0.5 $\mu\text{g}/\text{m}^3$. The highest reading from the laundry room was 1.8 $\mu\text{g}/\text{m}^3$.

III. THREATS TO PUBLIC HEALTH, WELFARE, OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES

The conditions at the Commerce Road Mercury Spill Site presented a release and a potential threat of a release of a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) hazardous substance, presenting an imminent and substantial endangerment to the public health, welfare, or the environment, and met the criteria for an emergency removal action provided for in the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 C.F.R. § 300.415(b)(2). These criteria include:

- 1) Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants;

This factor was present at the Site due to the presence of elemental mercury in this residence and actual exposure to mercury vapor that was confirmed through screening of the home with a Lumex meter and through analytical sampling. Elevated levels of mercury vapors were found throughout the home. Elemental mercury can easily be tracked from a house into the environment by foot traffic.

Continued exposures to the family, and any visitors or subsequent residents, was likely to occur until all of the mercury-contaminated areas were cleaned up to levels recommended by health officials. The Oakland County Health Department and the Michigan Department of Community Health, after consulting with ATSDR, have provided the following values as appropriate, long-term cleanup action levels for the residence:

•	Residential	$<1.0 \text{ ug/m}^3$	All inhabitants.
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Mercury poses a threat through inhalation, ingestion, and direct contact routes of exposure, and can result in severe nausea, vomiting, abdominal pain, bloody diarrhea, kidney and liver damage, and even death. Metallic mercury is highly toxic when inhaled, and attacks the central nervous system by destroying neurons.

Mercury is a characteristic waste under the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. § 6901 et seq., as amended, and 40 C.F.R § 261.24. Mercury exhibits the characteristic of toxicity D009, and is therefore a hazardous substance under Section 101(14) of CERCLA, 42 U.S.C. § 9601(14).

- 2) The availability of other appropriate federal or state response mechanisms to respond to the release.

The Michigan Department of Community Health was consulted regarding this Site. Their agency, along with the Oakland County Health Department, requested U.S. EPA assistance in cleanup due to a lack of funds and resources necessary to conduct the cleanup at the Site.

IV. ENDANGERMENT DETERMINATION

Given the Site conditions, the nature of the suspected hazardous substances on-site, and the potential exposure pathways described in Sections II and III above, actual or threatened releases of hazardous substances from this Site, if not addressed by implementing the response actions selected in this Action Memorandum, may have presented an imminent and substantial endangerment to public health, welfare, or the environment.

V. ACTIONS AND ESTIMATED COSTS

The purpose of this emergency removal action was to mitigate the immediate threats posed to the public health, welfare, or the environment by the presence of elemental mercury and the associated elevated mercury vapor levels. Removal activities at the Site included recovery of all elemental mercury from the Site, the identification and disposal of all mercury-contaminated media (carpeting, clothing, etc.), and the off-site disposal of all characterized wastes identified and collected during removal activities. Specifically, the following activities were performed:

- 1) Developed and implemented a Site Health and Safety Plan, including an air monitoring and sampling plan;
- 2) Confirmed and characterized the extent of mercury contamination at this residential property referred for characterization by State and local officials;
- 3) Removed and properly disposed of mercury and mercury-contaminated materials from this residential property, as necessary, at approved disposal facilities, in accordance with the U.S. EPA Off-Site Rule, 40 C.F.R § 300.440;
- 4) Decontaminated affected building structures and conducted air confirmation screening (Lumex) to verify that the building has been decontaminated to acceptable levels; and
- 5) Replaced only structural components (i.e. carpet, baseboards, etc.) destroyed or disposed of during removal activities.

All hazardous substances, pollutants, or contaminants removed off-site pursuant to this removal action for treatment, storage, and disposal were treated, stored, or disposed of at a facility in compliance, as determined by U.S. EPA, with the U.S. EPA Off-Site Rule, 40 C.F.R. § 300.440.

The removal action was conducted in a manner not inconsistent with the National Contingency Plan (NCP). The OSC has initiated planning for the provision of post-removal Site control, consistent with the provisions of § 300.415(l) of the NCP. The nature of this emergency removal action, the complete removal of mercury and mercury-contaminated media from the Site eliminated the need for any post-removal Site control.

The detailed cleanup contractor cost estimate is presented in Attachment 1 and estimated project costs are summarized below:

REMOVAL PROJECT CEILING ESTIMATE

EXTRAMURAL COSTS:

Regional Removal Allowance Costs:

Total Cleanup Contractor Costs	\$25,127
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(This cost category includes estimates for: ERRS, subcontractors, Notices to Proceed, and Interagency Agreements with Other Federal Agencies. Includes a 15% contingency.)

Other Extramural Costs Not Funded from the Regional Allowance:

Total START, including multiplier costs	\$10,000
Subtotal, Extramural Costs	\$35,127

Extramural Costs Contingency (20% of Subtotal, Extramural Costs)	\$ 7,025
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TOTAL, REMOVAL ACTION PROJECT CEILING	\$42,152
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The response actions described in this memorandum directly addressed the actual or threatened releases of hazardous substances, pollutants, or contaminants at the Site which may have posed an imminent and substantial endangerment to public health, welfare, or the environment. This response action did not impose a burden on affected property disproportionate to the extent to which that property contributes to the conditions being addressed.

Applicable or Relevant and Appropriate Requirements

All applicable, or relevant and appropriate requirements (ARARs) were complied with to the extent practicable. Federal ARARs for this Site include RCRA. As the materials being dealt with were likely to be RCRA characteristic wastes, they were handled accordingly. Air samples were taken and after cleanup, the results were found to be below the standard recommended by the ATSDR.

VI. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

Given the Site conditions, the nature of the hazardous substances documented on-site, and the potential exposure pathways to nearby populations described in Sections II and III above, actual or threatened release of hazardous substances from the Site, if not addressed by implementing the response actions selected in this Action Memorandum, would have presented an imminent and substantial endangerment to public health, welfare, or the environment.

VII. OUTSTANDING POLICY ISSUES

This removal action requires consideration of the nationally significant issue of cleanup of contaminants in residential interiors. This issue has been discussed with the Office of Solid Waste and Emergency Response Headquarters staff, who concur that because residential mercury contamination can result in the release of mercury to the external environment, cleanup of these interiors is therefore permissible.

VIII. ENFORCEMENT

For administrative purposes, information concerning the enforcement strategy for this Site is contained in the Enforcement Confidential Addendum.

The total EPA costs for this removal action based on full-cost accounting practices that will be eligible for cost recovery are estimated to be \$67,032¹

$$(\$42,152 + \$6,000) + (39.21\% \times \$48,152) = \$67,032$$

IX. RECOMMENDATION

This decision document represents the selected removal action for the Commerce Road Mercury Spill Site, developed in accordance with CERCLA, as amended, and is not inconsistent with the NCP. This decision was based upon the Administrative Record for the Site. Because the conditions at the Site meet the NCP § 300.415(b)(2) criteria for an emergency removal, I recommend your approval of this removal action. The total project ceiling, if approved, will be \$42,152. Of this amount, an estimated \$32,152 (including the extramural contingency) may be used for cleanup contractor costs. You may indicate your decision by signing below.

APPROVE: Beverly J. Kish for RGT DATE: 11/21/02
 Chief, Emergency Response Branch

DISAPPROVE: _____ DATE: _____
 Chief, Emergency Response Branch

¹Direct Costs include direct extramural costs and direct intramural costs. Indirect costs are calculated based on an estimated indirect cost rate expressed as a percentage of site-specific direct costs, consistent with the full cost accounting methodology effective October 2, 2000. These estimates do not include pre-judgment interest, do not take into account other enforcement costs, including Department of Justice costs, and may be adjusted during the course of a removal action. The estimates are for illustrative purposes only and their use is not intended to create any rights for responsible parties. Neither the lack of a total cost estimate nor deviation of actual total costs from this estimate will affect the United States' right to cost recovery.

cc: J. Finn, MRS-10J, w/o Enf. Addendum
A. Marouf, SR-6J, w/o Enf. Addendum
J. El-Zein, SE-GI
R. Karl, SE-5J
M. Johnson, ATSD-4J, w/o Enf. Addendum
W. Messenger, SE-5J
Public Affairs, P-19J, w/o Enf. Addendum
ERB Read File (C. Beck), SE-5J
ERB Task Order File (C. Norman), SE-5J
ERB Site File (M. Bedford), SMR-7J
Contracting Officer, MCC-10J, w/o Enf. Addendum
H. Bogda-Cleveland, C-14J
C. Ropski, SE-5J
M. Durno, SE-GI
J. Gulch, SE-GI

**THE ENFORCEMENT ADDENDUM FOR THE
COMMERCE ROAD MERCURY SPILL SITE HAS BEEN
REDACTED AS IT IS NOT RELEVANT TO THE
REMOVAL ACTION.**

ATTACHMENT 1

DETAILED CLEANUP CONTRACTOR ESTIMATE COMMERCE ROAD MERCURY SPILL SITE MILFORD, OAKLAND COUNTY, MICHIGAN NOVEMBER 2002

The estimated cleanup contractor costs necessary to complete the emergency removal action at the Commerce Road Mercury Site are as follows:

Personnel & Equipment	\$ 9,250
Materials	\$ 2,000
Analytical Subcontract	\$ 2,000
Transportation and Disposal	\$ <u>8,600</u>
TOTAL	\$ 21,850

ATTACHMENT 2

U.S. ENVIRONMENTAL PROTECTION AGENCY REMOVAL ACTION

ADMINISTRATIVE RECORD FOR COMMERCE ROAD MERCURY SPILL SITE MILFORD, OAKLAND COUNTY, MICHIGAN

ORIGINAL
NOVEMBER 1, 2002

<u>NO.</u>	<u>DATE</u>	<u>AUTHOR</u>	<u>RECIPIENT</u>	<u>TITLE/DESCRIPTION</u>	<u>PAGES</u>
1	09/17/02	Durno, M., U.S. EPA	Distribution List	Pollution Report #1 for the Commerce Road Mercury Spill Site	4
2	10/25/02	Gulch, J., U.S. EPA	Distribution List	Pollution Report #2 for the Commerce Road Mercury Spill Site	4
3	11/00/02	Gulch, J., U.S. EPA	Distribution List	Pollution Report #3 (Final) for the Commerce Road Mer- cury Spill Site	3
4	00/00/00	Gulch, J., & Durno, M., U.S. EPA	Karl, R., U.S. EPA	Action Memorandum: Request for an Emergency Removal Action at the Com- merce Road Mercury Spill Site (PENDING)	

**INDEPENDENT GOVERNMENT COST ESTIMATE
COMMERCE ROAD MERCURY SPILL SITE***

Decontamination

One home will require decontamination.

1 home @ \$11,250 per home	\$ 11,250
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Disposal

<20 cubic yard of mercury-contaminated debris will require T&D	\$ 8,600
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Subcontracts

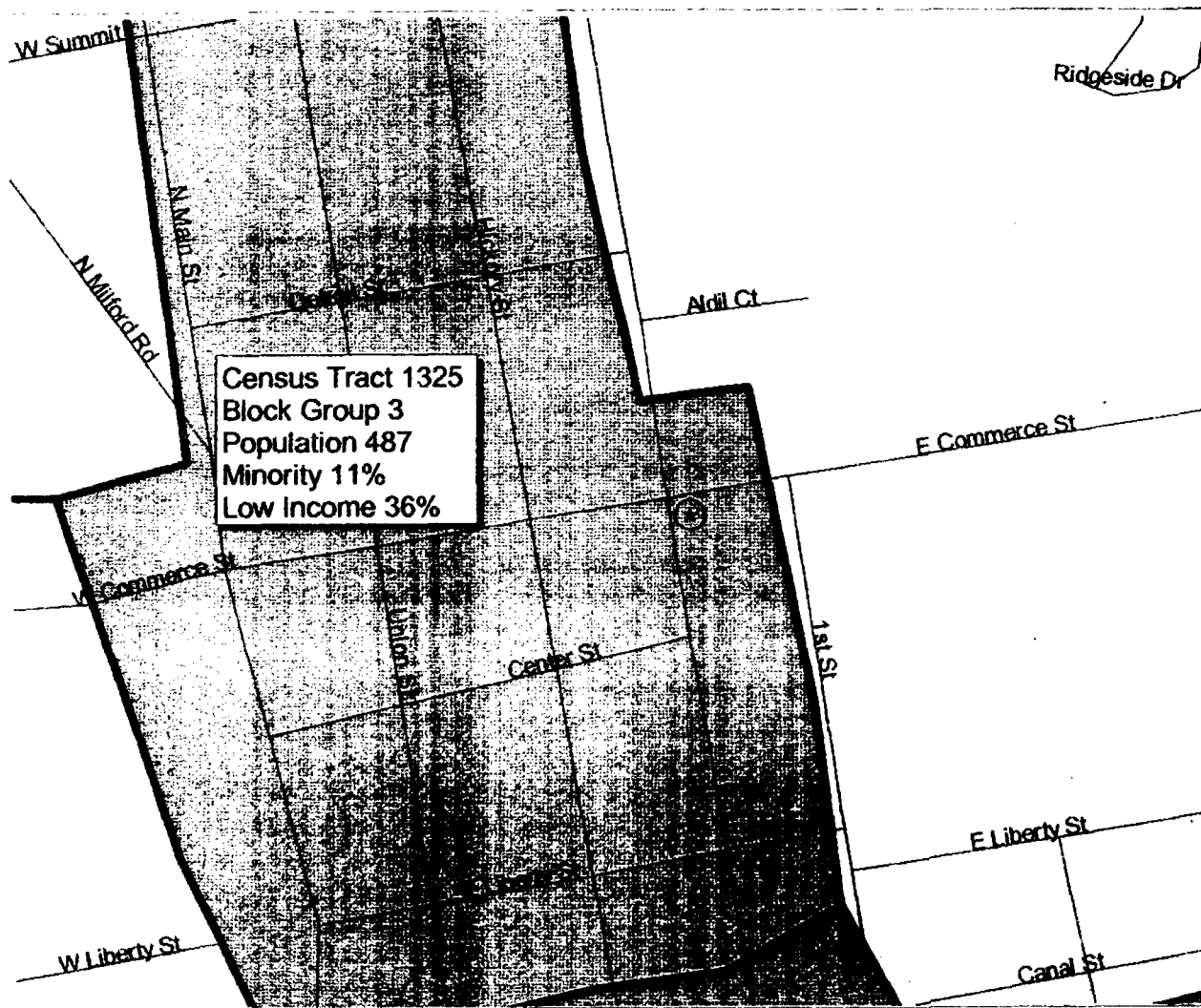
Analytical Services @ \$2,000/site	<u>\$ 2,000</u>
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TOTAL	\$ 21,850
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- * This estimate is based on the previous other recent residential mercury clean-ups in the region over the past year.

Region 5 Superfund EJ Analysis

Commerce St. Mercury Spill Site Milford, MI



EJ Identification

- Low Income and Minority Less than State Average
- Low Income or Minority at or Greater than State Average
- Low Income or Minority 2 Times or Greater than State Average
[meets Region 5 EJ Case criteria]
- Site Location
- Block Group Boundary

Region 5 EJ Case Criteria for Michigan
Minority: 36% or greater
Low Income: 58% or greater



0 0.1 0.2 0.3 0.4 Miles

U.S. EPA Region 5
Superfund Division

Date of Map: 10/17/02
Source of Map: 1990 Census Database